Instructions

You are taking part in an experiment involving financial decisions. The instructions are simple and if you follow them carefully and make good decisions, you can earn some money, which will be paid to you after the experiment. The currency used in this experiment is called "eurux". The amount of eurux you accumulate will be converted at the end of the experiment into "real" euros. The exchange rate is 150 eurux for 1 Euro. If anything is unclear at any time, feel free to raise your hand and ask the experimenter any question you may have. Please do not talk to other participants during the entire experiment.

a. Main characteristics of the experiment

In this experiment, you will play several "lifecycles." A **lifecycle** consists of two periods: In the **first period** of a lifecycle, you are "**Young**." In the **second period** of a lifecycle, you are "**Old**."

Once the second period ends, you will play again in a new lifecycle until the end of the experiment for a certain number of periods.
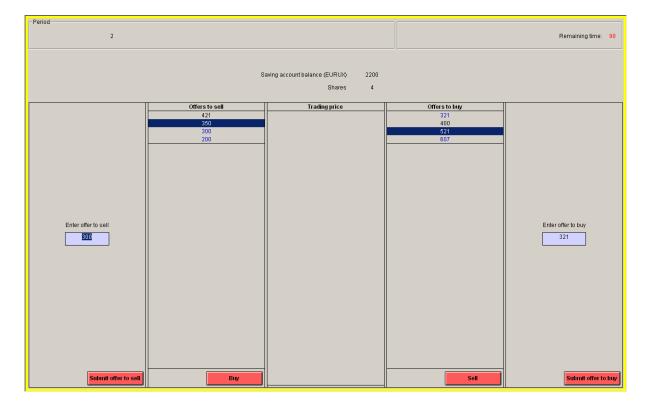
In each lifecycle, you can earn money (Eurux). The amount of money you earn will depend on your investment decisions when "Young" and "Old" as well as on other participants' decisions.

When the lifecycle starts and you are "Young", you will receive a budget in EURUX that will be deposited in your bank account and that <u>earns a preannounced interest rate</u> paid to you at the end of the lifecycle (when you are "Old").

You can use theis money to trade (i.e. buy and sell) units of an asset with the other participants.

Depending whether you are "Young" or "Old", you will be able to "buy" or "sell" shares, respectively.

In the following we will explain you how to buy and sell shares in each period of the experiment.

b. Trading Interface

This is the trading interface you will use during the entire experiment.

In the top left corner you can see in which period you are participating. The top right corner shows how much time (in seconds) is left in the current period.

If your role for this period is of **Young** (Old), you will only be able to **buy** (sell) shares.

In order to buy shares you need money, while if you want to sell shares you need to own them.

The quantity of money and the number of shares you currently have for trading is reported at the top of the screen. Both are instantly updated each time you buy or sell a share.

In the following, the experimenter will explain you how to buy and sell shares by using the trading interface.

Young Role – Buying shares

If you are "Young" you will only be able to buy shares. You can do it in two ways.

First, you can **initiate a purchase** of a share by **submitting** an **offer to buy**.

If you have money (eurux) in your bank account and would like to buy a share, you can initiate the purchase by submitting an offer to buy.

Try submitting an offer to buy a share now. Write a number in the text area "Enter offer to buy." Then press the red button labelled "Submit offer to buy". Immediately in the column labelled "Offers to buy", you will see a list of numbers ranked from low to high. These numbers are the prices at which traders are willing to buy a share in this period. The offers to buy will be executed once they are accepted.

Your own offers are marked in blue; others' offers are in black.

Second, you can **realize a purchase** of shares by **accepting** an **offer to sell submitted** by a participant in the "Old" role.

If you have enough money in your savings account, you can buy a share at one of the prices listed in the "Offers to sell" column, which contains all the offers to sell submitted by participants in the "Old" role. You buy a share by selecting one of the others' offers and then clicking on the red button "Buy".

If you click on the "Buy" button without selecting any offer, the program will automatically buy for you at the **cheapest (best)** price among the offers to sell currently posted by others. The best offer currently available is highlighted in deep blue.

Try buying a share now. Choose a price in the column "Offer to sell" and then click on the "Buy" button;

Whenever an offer is accepted, a transaction is executed. Immediately when you **accept** an offer to sell, you realize a purchase and the number of EURUX in your savings account goes down by the trading price; at the same time, your trading partner realizes a sale and the balance in his/her savings account increases by the trading price.

Old Role – Selling Shares

If you are "Old" you will only be entitled to sell shares. You will be able to do it in two ways.

First, you can **initiate a sale** of shares by **submitting** an **offer to sell.**

Try offering to sell a share now. Write a number (integer) in the text area labelled "Enter offer to sell" in the first column and then click on the button "Submit offer to sell". You can see that a set of numbers will appear in the column labelled "Offers to sell". Each number corresponds to an offer from one of the participants. Your own offers are shown in blue; others' offers are shown in black. The offers to sell are ranked from high to low. Each offer is to sell **one single** share. Note that by submitting an offer to sell, you initiate a sale, but the sale will not be executed until someone accepts it.

If you want to sell more shares, repeat this process.

<u>Second</u>, you can **realize a sale** of a share by **accepting** an **offer to buy.**
Try selling a share now.

If you have shares in your account, you can sell them by selecting a price listed in the "Offers to buy" column, which contains all the offers to buy submitted by participants in the "Young" role. You sell a share by selecting one of the others' offers and then clicking on the red button "Sell".

If you click on the "Sell" button without selecting any offer, the program will automatically sell one share for you at the **highest (best)** price <u>currently</u> listed in the column of "Offers to buy", which is highlighted in deep blue.

A transaction is executed whenever an offer to buy is accepted. If you accept an offer to buy posted by others, you realize a sale and as a result, the amount of EURUX in your savings account increases by the trading price. In contrast, when your offer to buy is accepted by someone else, you realize a purchase and the number of EURUX in your savings account decreases by the trading price. The reverse happens to your trading partner.

One of the objectives when "Old" is to sell all the shares you previously purchased to the current "Young" participants. It can happen that the time period expires and you still have some units to sell.

If this happens, the program will automatically sell your remaining units to the "Young" participants for a lower price (later in the instructions we will explain how this price will be calculated).

c. Interest on Bank Account

The money (Eurux) that you have in your bank account earns interest. The interest rate you will receive is announced when you are "Young" and remains displayed on your trading screen. You will receive this money at the end of your lifecycle, when you are Old. The interest rate will be applied to the balance that you carry over to the next period at the end of your Young period.

Example: if you have 5000 eurux left in your account after buying shares as "Young and the current interest rate is 10%, your account will be credited with 500 eurux at the end of your "Old" period.

d. Report Screen

Once the trading market closes, after each period, you will see a screen summarizing your current situation.

The Young role screen contains the following information:

```
┌─ Period ─────────────────────────────────────────────────────────────────┐
│        1                                                                   │
├───────────────────────────────────────────────────────────────────────────┤
│                              Report                                        │
│                                                                            │
│   Current lifecycle                          3                             │
│                                                                            │
│   Interest rate                              8%                            │
│                                                                            │
│   Average transaction price (per share)      XXXX                          │
│                                                                            │
│   ROLE                                       YOUNG                         │
│                                                                            │
│   Number of shares purchased                 2                             │
│                                                                            │
│   Additional shares assigned                 1                             │
│                                                                            │
│   Total shares available to sell when OLD    3                             │
│                                                                            │
│   Bank Deposit Account                       3200                          │
│                                                                            │
│                                                              [ Continue ]  │
└───────────────────────────────────────────────────────────────────────────┘
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The Young role screen contains the following information:

- *Current Lifecycle*: The Lifecycle (i.e. a young period followed by an old one)
- *Interest rate*: The interest rate you will receive on the money you did not use to buy shares (i.e. Your Bank Deposit Account)
- *Average transaction price* (per share): The average transaction price resulting from all transactions.
- *Role*: Your Role in the period just finished
- *Number of shares purchased*: The number of units you purchased by trading with participants in the Old role
- *Additional shares assigned*: You might randomly receive some additional units. I will explain this later in the instructions.
- *Total shares available to sell*: The number of shares purchased plus the additional shares assigned
- *Bank deposit account*: The amount of Eurux you did not use to purchase shares and that will receive the announced interest.

The Old role screen contains the following information:

<table>
<tr><td colspan="2" align="center">**Report**</td></tr>
<tr><td>Completed Lifecycles</td><td>2</td></tr>
<tr><td>Interest rate</td><td>8%</td></tr>
<tr><td>ROLE</td><td>OLD</td></tr>
<tr><td>Shares before selling</td><td>3</td></tr>
<tr><td>Interest received</td><td>300</td></tr>
<tr><td>Bank Deposit Account</td><td>4500</td></tr>
<tr><td>Bank Deposit Account + Interest</td><td>4800</td></tr>
<tr><td>Average transaction price (per share)</td><td>XXXX</td></tr>
<tr><td>Revenue from shares sold on discount</td><td>XXXX</td></tr>
<tr><td>LifeCycle Payoff</td><td>1100</td></tr>
</table>

Continue

The Old role screen contains the following information:

- *Completed lifecycles*: the number of lifecycles that you played (i.e. a period you played as Young followed by a period you played as Old).
- *Interest Rate:* The interest rate you received on the money you did not use to buy shares when young.
- *Role*: Your role for the period just finished.
- *Shares before selling*: The number of shares you had (purchased when young) to sell at the beginning of your old period.
- *Interest received*: The quantity of money you receive as interest.
- *Bank Deposit account*: The total amount of Eurux you received by selling the shares + the money from the shares you sold on discount (I will explain this later in the instructions).
- *Bank Deposit account + interest*: Bank Deposit account + interest received.
- *Average transaction price* (per share): The average transaction price resulting from all transactions.
- *Revenues from shares sold on discount:* The amount of money you received from the shares you were not able to sell (see explanation below)

Important information for both roles

As a YOUNG participant one of your objectives is to purchase shares owned by the OLD participants in each period. Any shares not bought by YOUNG participants by the end of the period are sold to them

automatically at a price equal to average trading price of the period times 1.5. Therefore, it is usually better to purchase units during the period than to be forced to do so afterwards.

As an OLD participant, one of your objectives is to sell shares to the YOUNG participants in each period. Any shares not sold by OLD participants by the end of the period are sold automatically to YOUNG participants at a price equal to average trading price of the period times 0.5. Therefore, it is usually better to sell units during the period than to be forced to do so afterwards.

e. Number of periods and composition of the market

You will be playing in several lifecycles, each one composed of two periods. A sequence of lifecycles forms a "market session". Each period, a "lottery" determines if the market session continues or comes to an end.
There is a 10 percent chance that any given period is the last one. Equivalently, there is a 90 percent chance that the current "market session" will continue beyond the present period.
An "experimental session" will usually involve several "market sessions." When a market session ends, a new one will start immediately with the same characteristics.

When a new market session ends, you will be randomly matched with different participants for the following session. Therefore you will typically playing with different people in each experimental session.

f. Lifecycle payoff and participant payment

The decisions you make in each of your lifecycles affect your earnings in this experiment.

Your lifecycle payoff is calculated as the total of (1) + (2), where

   (1) Is the interest you receive in your bank account on the money you did not use to buy shares when Young.
   (2) The price at which you have been able to sell the shares when you are Old that you purchased when you were Young. If you sell a share when you are Old at a higher price than you bought it for when you were young, you make a profit equal to the difference between the price you sold the share for and the price you paid for it. If you sell a share when you are Old at a lower price than you bought it for when you were young, you lose money equal to the difference between the price you sold the share for and the price you paid for it.

Therefore, when you are young and thinking about purchasing units and which price you should pay, you should consider the interest rate, which determines (1) and how you expect the price to change between the time you are young and old, which determines (2).

You will receive 5 Euro for participating in this experiment independently of your performance.
At the end of the experiment, **one lifecycle** will be **chosen randomly** and your total amount of Eurux will be transformed into Euro and paid out to you. The exchange rate is 150 Eurux for 1 Euro.